



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/914,006

01/07/2002

Lothar Eggeling

PT 1.1678

7184

23416

7590

01/03/2007

CONNOLLY BOVE LODGE & HUTZ, LLP

P O BOX 2207

WILMINGTON, DE 19899

EXAMINER

FRONDA, CHRISTIAN L

ART UNIT

PAPER NUMBER

1652

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/914,006	<b>Applicant(s)</b> EGGELING ET AL.	
	<b>Examiner</b> Christian L. Fronda	<b>Art Unit</b> 1652	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-26, 29-37 and 40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18, 20-26, 29-37 and 40 is/are allowed.
- 6) ☒ Claim(s) 14-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1652

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/30/2006 has been entered.
2. Claims 14-26, 29-37, and 40 are pending and under consideration in this Office Action.
3. The rejection of claims 14-26, 29-37, and 40 under 35 U.S.C. 112, first paragraph, enablement has been withdrawn in view of applicants' amendment to the claims filed 10/30/2006.

### *Claim Rejections - 35 U.S.C. § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keilhauer et al. (J Bacteriol. 1993 Sep;175(17):5595-603) in view Reuter (Genetic and physiological analysis of the formation of pantothenate and valine in *Corynebacterium glutamicum*. Berichte des Forschungszentrums Juelich (1998), Juel-3606, 1-115 pp. (ABSTRACT); PTO 892 from the Office Action dated 08/12/2003).

Keilhauer et al. teach a transformed *Corynebacterium glutamicum* strain transformed with plasmid pCKHy1-1 containing nucleotide sequences encoding acetohydroxy acid synthase and isomeroreductase (ilvBNC) (see entire publication especially TABLE 1 and **RESULTS** section on pp. 5597-5600).

Reuter teaches the *Corynebacterium glutamicum* panB and panC gene encoding ketopantoate hydroxymethyltransferase and pantothenate synthetase, respectively, which catalyze important steps of the biosynthetic pathway of pantothenate. Reuter teach that overexpression of

Art Unit: 1652

ilvBNCD in combination with the deletion of the ilvA gene resulted in a strain which accumulates 11.3g of valine and 190mg pantothenate/L (see entire abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the transformed *Corynebacterium glutamicum* strain taught by Keilhauer et al. such that the panB, panC, and ilvA genes are deleted by recombinant molecular biology techniques. One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to make a transformed *Corynebacterium glutamicum* strain that will be able to over produce L-valine due to the deletion of panB, panC, and ilvA genes, which can be used in a fermentation process to make L-valine. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation for success since recombinant molecular biology techniques for gene activation are well known in the art.

Amending the claims to recite (1) a microorganism transformed with a nucleotide sequence encoding dihydroxy acid dehydratase (ilvD) comprising the portion of SEQ ID NO: 1 encoding ilvD; or (2) a microorganism transformed with said nucleotide sequence encoding ilvD comprising the portion of SEQ ID NO: 1 encoding ilvD and nucleotide sequences encoding acetohydroxy acid synthase and isomeroreductase (ilvBNC), wherein said microorganism is a *Corynebacterium* species that overproduces L-valine compared to an untransformed *Corynebacterium* species may overcome the rejection.

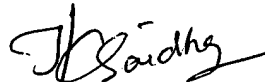
### **Conclusion**

6. Claims 18, 20-26, 29-37 and 40 are allowed.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian L Fronda whose telephone number is (571)272-0929. The examiner can normally be reached Monday-Friday between 9:00AM - 5:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura N Achutamurthy can be reached on (571)272-0928. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.
8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 1652

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLF

  
**TEKCHAND SAIDHA**  
**PRIMARY EXAMINER**